(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 003 250 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
13.10.2004 Bulletin 2004/42

(51) Int Cl.[7]: **H01R 13/658**, H01R 9/05, H01R 4/18

(21) Application number: **99123132.5**

(22) Date of filing: **19.11.1999**

(54) **A shield connector, a set of shielded connectors and method for connecting a shielded connector with a shielded cable**

Ein abgeschirmter Verbinder, ein abgeschirmtes Verbinderset und Verfahren für die Verbindung von einem abgeschirmten Verbinder mit einem abgeschirmten Kabel

Un connecteur blindé, un jeu de connecteurs blindés et procédé pour connecter un connecteur blindé avec un câble blindé

(84) Designated Contracting States:
DE FR GB IT

(30) Priority: **19.11.1998 JP 32968598**
01.12.1998 JP 34199398
02.12.1998 JP 34253598

(43) Date of publication of application:
24.05.2000 Bulletin 2000/21

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EP 1 003 250 B1

Description

[0001] The present invention relates to a shielded connector, a set of shielded connectors and a method for connecting a shielded connector with a shielded cable.

[0002] A known shielded connector of this type is disclosed in Japanese Unexamined Utility Model Publication No. 5-27983. This terminal 1 is provided with three crimping portions: an inner conductor crimping portion 2a, an outer conductor crimping portion 3b and a sheath crimping portion 3c as shown in FIGS. 6 to 8.

[0003] A shielded cable 2 and the prior art shielded connector 1 are connected as follows. An inner conductor 51 is exposed by stripping a sheath 54, an outer conductor 52 and an insulating element 53 at an end of the shielded cable 50, and the inner conductor crimping portion 2a is fastened to the exposed inner conductor 51. Subsequently, only the sheath 54 is stripped at this end of the shielded cable 50 to expose the outer conductor 52, and the outer conductor crimping portion 3b is fastened to this exposed portion 56 of the outer conductor 52. Finally, the sheath crimping portion 3c is fastened to the sheath 3c at the end of the shielded cable 50 located behind the exposed portion 56.

[0004] The three crimping portions are simultaneously crimped after the aforementioned shielded connector 1 is placed in a crimper. Particularly, since the inner terminal 2 is crimped after being accommodated in the outer terminal 3, it is essential for the outer terminal 3 to be formed with openings 3a in its top and bottom walls in order for crimping molds of the crimper to reach the inner terminal 2 accommodated in the outer terminal 3.

[0005] However, because of the presence of the openings 3a, a portion of the inner conductor 51 not covered by the outer conductor 52 and the inner terminal 2 are exposed to the outside through the openings 3a. This causes a problem of a reduced shielding characteristic. Depending on the situation, it is necessary to apply shielding using an other member.

[0006] Document US 5 667 404 discloses a circular shielded connector for the use with a coaxial cable. In this connector, the inner terminal is connected to the inner conductor before inserting the inner terminal into the outer terminal with a dielectric element provided therebetween. The outer terminal comprises a cylindrical portion which is provided with an axial slit such that it may be elastically deformed to be fitted into a molding cover and a joint to connect the cylindrical portion of the outer terminal with a crimping portion to be crimped with an outer conductor. Further, this connector includes a shielding cylinder to shield a portion of the inner terminal to be fastened with the inner conductor.

[0007] Document US-A-5 145 409 discloses a connector according to the preamble of claim 1 and a method according to the preamble of claim 4.

[0008] The object of the invention is to reduce the number of parts of a shielded connector and to facilitate the assembly procedure, while maintaining good shielding characteristics.

[0009] This object is achieved by a set of shielded connectors having the features according to claim 1 and a respective method according to claim 4. Further developments of the invention are defined in the dependent claims.

[0010] According to a preferred embodiment, the outer terminal is formed such that it can be fastened to the outer conductor of the shielded cable with the inner terminal connected with the inner conductor.

[0011] Preferably, the outer conductor is at least partly folded back over the sheath thereby forming a folded portion, and the outer terminal is formed with a crimping portion which can be at least partly fastened to the folded portion.

[0012] Further preferably, the outer conductor is folded back over the sheath, and the outer terminal is formed with a crimping portion which can be fastened both to the outer conductor and to the sheath.

[0013] Accordingly, since the outer terminal can be fastened to the outer conductor and the sheath by one crimping operation, the crimping molds for crimping the outer terminal can be so constructed as to crimp one crimping portion without needing to be constructed in conformity with a plurality of crimping portions. Therefore, the crimping molds are allowed to have a simple construction and portions thereof corresponding to the crimping portion can be made shorter.

[0014] According to claims 1 and 4, by connecting the male and female shielding connectors with the open surfaces thereof faced in opposite directions, radiation characteristic which is influential in the high-frequency signal transmitted through the inner outer can be balanced, with the result that shielding characteristic can be improved.

[0015] According to a preferred embodiment of the invention, the method further comprises the step of fastening the outer terminal to the outer conductor of the shielded cable after the inner terminal is connected with the inner conductor in the inner terminal fastening step.

[0016] Preferably, the method further comprises the following steps:

stripping the sheath to substantially expose the outer conductor;

fastening a crimping portion of the outer terminal to both the sheath and the outer conductor being preferably folded back over the sheath.

[0017] Most preferably, in the fastening step crimping pieces of the crimping portion are so crimped as to at least partly wind on or around the outer conductor with the end of a first crimping piece substantially placed or placeable on that of a second crimping piece.

[0018] These and other objects, features and advantages of the present invention will become more apparent upon a reading of the following detailed description

and accompanying drawings in which:

FIG. 1 is an exploded perspective view showing parts constructing a shielded connector according to one embodiment of the invention,
FIG. 2 is a section of an assembled male shielded connector,
FIG. 3 is a section of an assembled female shielded connector,
FIG. 4 is a side view of the shielded connectors after connection,
FIG. 5 is a section of the connected shielded connectors,
FIG. 6 is a perspective view of a prior art shielded connector,
FIG. 7 is a plan view of the prior art shielded connector, and
FIG. 8 is a side view partly in section of the prior art shielded connector.

[0019] Hereinafter, one embodiment of the invention is described with reference to the accompanying drawings.

[0020] Shielded connectors 10a, 10b according to this embodiment are connectable with each other and have such an integral construction that inner terminals 20a, 20b are accommodated in outer terminals 40a, 40b with dielectric elements 30a, 30b provided therebetween. Shielded cables 50 are connectable with the shielded connectors 10a, 10b (see FIG. 1).

[0021] Here, the female shielded connector 10b differs from the male shielded connector 10a in that the inner terminal 20b is a female terminal, the outer terminal 40b is or can be at least partly accommodated in the outer terminal 40a and is not provided with contact pieces 43 and a touching or contact piece 48, and a contact portion 33 is provided at the leading end of the dielectric element 30b. However, since the female and male shielded connectors 10a, 10b are similarly constructed and assembled, only the male shielded connector 10a is described here to avoid repetitive description and the same or similar construction is identified by the same or similar reference numerals.

[0022] Hereinbelow, a side (right side in FIG. 2) of the inner terminal 20a of the connector 10a to be connected with an unillustrated mating inner terminal is referred to as a front side and an opening direction (an upward direction in FIG. 2) of a covering portion 45 is referred to as an upward direction.

[0023] The shielded cable 50 has such a substantially coaxial construction that an insulating element 53 is provided between an inner conductor 51 formed e.g. by bundling a plurality of strands and an outer conductor 52 made e.g. of a braided wire or a metal sheet and the outer surface is covered by a sheath 54 made of, e.g. vinyl. The sheath 54 is stripped at one end of the shielded cable 50 to partly expose the outer conductor 52, which is then folded back at least partly over the sheath 54, thereby forming a folded portion 55, and the insulating element 53 is stripped before the folded portion 55 to partly expose the inner conductor 51 (see FIG. 1). The exposed leading end of the inner conductor 51 is or can be connected with the inner terminal 20a, and the outer conductor 52 is or can be connected with the outer terminal 40a via the folded portion 55.

[0024] The inner terminal 20a of the male shielded connector 10a is an electrically conductive male terminal as shown in FIG. 1 and a front part thereof is formed into a tab connectable with the inner terminal 20b of the female shielded connector 10b. In the middle of the inner terminal 20a are provided a pair of biting or engaging projections 23 for biting into or engaging the inner wall of an accommodating hole 31 when the inner terminal 20a is inserted into the dielectric element 30a described later to fix the inner terminal 20a. Behind the biting projections 23 is provided an inner crimping portion 24 preferably comprised of at least one pair of crimping pieces for fastening the inner conductor 51.

[0025] The dielectric element 30a is made of an insulating material such as resin and electrically insulates the inner and outer terminals 20a, 40a from each other. Inside the dielectric element 30a is formed the accommodating hole 31 for accommodating and fixing the inner terminal 20a. Further, a locking recess 32 is formed in the outer surface of the top of the dielectric element 30a and the contact portion 33 is provided on the outer surface of the bottom of the dielectric element 30a in order to fix the dielectric element 30a in the outer terminal 40a (see FIGS. 1 and 2).

[0026] The outer terminal 40a is formed e.g. by bending an electrically conductive plate, and a front part thereof is an accommodating portion 41 preferably in the form of a substantially rectangular tube. In order to lock the aforementioned dielectric element 30a in a specified position in the accommodating portion 41, an elastically deformable locking portion 42 is so formed in the top wall of the outer terminal 40a as to project inward and obliquely backward and a contact piece 48 is cut in the bottom wall of the outer terminal 40a and bent inward at an angle different from 0° or 180°, preferably substantially at right angles. Further, the contact pieces 43 for elastically contacting the female shielded connector 10b are so formed in the right and left walls of the outer terminal 40a as to project inward and obliquely forward.

[0027] Behind the accommodating portion 41 is provided the covering portion 45 and is so constructed as to be substantially closed on three sides by the left, right and bottom walls. The covering portion 45 improves a shielding characteristic for the inner conductor 51 and the inner crimping portion 24 of the inner terminal 20a which are to be accommodated therein. This improvement in the shielding characteristic is described later. At the upper ends of the covering portion 45 are provided stabilizers 44 which project outward along the transverse direction of the outer terminal 40a (see FIG. 1). The stabilizers 44 are designed to prevent an upside-

down insertion of the shielded connector 10a into an unillustrated connector housing to introduce the outer terminal 40a in a right direction and to substantially stably fix the shielded connector 10a in the connector housing. The stabilizers 44 also function to substantially lock an unillustrated retainer for securely locking the inserted shielded connector 10a in the connector housing.

[0028] Behind the covering portion 45 is provided an outer crimping portion 46 for fastening the outer conductor 52, preferably the folded portion 55 of the shielded cable 50. At least one pair of strip-shaped crimping pieces 47 substantially extend from the bottom of the outer crimping portion 46, are spaced apart wider from each other toward their leading ends, and preferably have such a length that they can substantially surround shielded cables of various diameters.

[0029] The shielded connector 10a is assembled as follows. First, the inner crimping portion 24 of the inner terminal 20a is fastened to the partly exposed inner conductor 51 before the inner terminal 20a is inserted into the outer terminal 40a.

[0030] Next, the dielectric element 30a is at least partly inserted into the accommodating portion 41 of the outer terminal 40a from front. Then, the touching piece 48 substantially comes into contact with the contact portion 33 and the locking portion 42 substantially slips into or is positioned in the locking recess 32, thereby substantially locking the dielectric element 30a in the specified position in the accommodating portion 41. Thereafter, when the inner terminal 20a connected with the inner conductor 51 is at least partly inserted into the accommodating hole 31 of the dielectric element 30a, the biting projections 23 bite into or engage the wall of the accommodating hole 31 to stably fix the inner terminal 20a (see FIG. 2).

[0031] Then, the shielded connector 10a is placed in an unillustrated crimper after the folded portion 55 is placed on the bottom of the outer crimping portion 46 of the outer terminal 40a. The outer crimping portion 46 is substantially tightly held between unillustrated crimping molds and are crimped or folded such that the crimping pieces 47 are brought into substantially close contact at least partly with the outer surface of the folded portion 55 with the end of one crimping piece 47 preferably placed on that of the other crimping piece 47. In this way, the male shielded connector 10a is assembled.

[0032] When the shielded connector 10a is assembled as shown in FIG. 2, the inner conductor 51 not covered by the outer conductor 52 and the inner crimping portion 24 of the inner terminal 20a fastened to the leading end of the inner conductor 51 are at least partly accommodated in or covered by the covering portion 45.

[0033] Since the inner conductor 51 behind the folded portion 55 is covered by the outer conductor 52 and a front part of the inner terminal 20a accommodated in the accommodating portion 41 is surrounded by the walls of the accommodating portion 41, they are both surrounded on their four sides by the conductive elements. Thus, there is no problem in shielding. It is most desirable in terms of shielding characteristic to similarly substantially cover or enclose the inner conductor 51 not covered by the outer conductor 52 and located before the folded portion 55 and a portion of the inner terminal 20a at and near the inner crimping portion 24 not covered by the accommodating portion 41 preferably on their four sides by the conductive elements.

[0034] However, in this embodiment, only the upper surface of the covering portion 45 is open and the remaining three surfaces are closed since the shielded connectors 10a, 10b are locked by locking portions when being accommodated in the unillustrated connector housing. Although a slight clearance is formed between the covering portion 45 and the outer crimping portion 46 in order to easily form the outer crimping portion 46, it is desirable to substantially close this clearance. In this embodiment, this clearance is made as narrow as possible while realizing the above purpose.

[0035] According to the thus constructed shielded connectors 10a, 10b of this embodiment, the inner conductor 51 not covered by the outer conductor 52 and the portion of the inner terminal 20a at and near the inner crimping portion 24 are substantially covered by the left, right and bottom (top wall in the case of the shielded connector 10b) walls (see FIGS. 2 and 3). Thus, shielding characteristic can be remarkably improved with respect to leftward, rightward and downward (upward in the case of the shielded connector 10b) directions. Further, shielding characteristic can be further improved by making the clearance between the covering portion 45 and the outer crimping portion 46 as narrow as possible.

[0036] In the shielded connectors 10a, 10b according to this embodiment, after being fastened to each other, the inner terminals 20a, 20b and the inner conductors 51 are at least partly accommodated in the outer terminals 40a, 40b, which are then fastened to the folded portions 55. Accordingly, the outer terminals 40a, 40b can be fastened by applying crimping in only one position. Thus, the crimping molds used to crimp the outer terminals 40a, 40b can be so constructed as to crimp only the outer crimping portion 46 without needing to be constructed in conformity with a plurality of crimping portions. Thus, the crimping molds are allowed to have a simple construction and the entire length of a portion of each mold corresponding to the outer crimping portion 46 can be made shorter. Further, since the outer terminals 40a, 40b are crimped only once, efficiency in crimping operation can be improved since the adjustment of a crimping force and confirmation as to whether or not fastening has been satisfactorily performed are made only for the single crimping portion 46.

[0037] FIGS. 4 and 5 show a state where the male and female shielded connectors 10a, 10b are connected with each other. In FIGS. 4 and 5, the shielded connectors 10a, 10b are connected with the open surfaces of their covering portions 45 facing in different directions.

[0038] The covering portions 45 of the shielded con-

nectors 10a, 10b having an open surface, the intensity of a high frequency signal may slightly change due to its radiation to the outside via the open surface and/or noise may enter from the outside. If the open surfaces of the male and female connectors 10a, 10b are facing in the same direction, the signal radiates in the same direction and noise enters from the same side. This causes a variation in the high-frequency signal, which then causes a variation in the performance characteristic of the side surfaces of the connector, causing a problem.

[0039] By connecting the male and female shielded connectors 10a, 10b with their open surfaces faced in different directions, the radiation of the high-frequency signal and the intrusion of noise can be symmetrically balanced. Therefore, a performance reduction in a specific direction can be prevented when the high-frequency signal transmitting through the inner conductor 51 passes the shielded connectors 10a, 10b, with the result that shielding characteristic can be improved.

< Other Embodiments>

[0040] The present invention is not limited to the foregoing embodiments. For example, an embodiment as described below is also embraced by the technical scope of the present invention as defined in the claims. Besides the following embodiment, a variety of changes can be made without departing from the scope of the present invention as defined in the claims.

[0041] The covering portion 45 may be provided as a separate or as an integral or unitary part of the outer terminal 40.

LIST OF REFERENCE NUMERALS

[0042]

10a, 10b...	Shielded Connector
20a, 20b...	Inner Terminal
30a, 30b...	Dielectric Element
40a, 40b...	Outer Terminal
46 ...	Outer Crimping Portion (Crimping Portion)
51 ...	Inner Conductor
52 ...	Outer Conductor
53 ...	Insulating Element
54 ...	Sheath

Claims

1. A set of shielded connectors, comprising first and second shielded connectors (10a, 10b), both being connectable with a shielded cable (50) in which an insulating element (53) is provided between inner and outer conductors (51, 52) and the outer surface is covered by a sheath (54), both connectors (10a, 10b) comprising:

   an inner terminal (20a, 20b) connectable with the inner conductor (51),
   an outer terminal (40a, 40b) which is adapted to at least partly accommodate the inner terminal (20a, 20b) with a dielectric element (30a, 30b) provided therebetween and is connectable with the outer conductor (52),

   wherein the inner terminal (20a, 20b) is fastenable to the inner conductor (51) of the shielded cable (50) at least partly outside the outer terminal (40a, 40b), the outer terminal (40a, 40b) being formed in substantial in the shape of a rectangular tube and including a covering portion (45) for covering a portion of the inner terminal (20a, 20b) to be fastened to the inner conductor (51) on three sides of said rectangular tube, leaving one surface of the outer terminal open through which the inner terminal is exposed to the outside, and characterized in that
   said first and second mating connectors (10a, 10b) are connectable such that said open surfaces of the outer terminals (40a, 40b) thereof face in different directions from each other, preferably substantially opposite directions.

2. A shielded connector according to claim 1, wherein the outer terminal (40) is formed such that it can be fastened to the outer conductor (52) of the shielded cable (50) with the inner terminal (20) connected with the inner conductor (51).

3. A shielded connector according to one or more of the preceding claims, wherein the outer conductor (52) is at least partly folded back over the sheath (54) thereby forming a folded portion (55), and the outer terminal (40) is formed with a crimping portion (46) which can be at least partly fastened to the folded portion (55).

4. A method for connecting a shielded connector (10a; 10b) with a shielded cable (50) in which an insulating element (53) is provided between inner and outer conductors (51, 52) and the outer surface is covered by a sheath (54), comprising the following steps:

   fastening an inner terminal (20a, 20b) of the shielded connector (10a; 10b) to the inner conductor (51) of the shielded cable (50) at least partly outside an outer terminal (40a, 40b) of the shielded connector (10a, 10b), and
   accommodating the inner terminal (20a, 20b) at least partly in the outer terminal (40a, 40b) with a dielectric element provided therebetween.

forming the outer terminal (40a, 40b) in substantial in the shape of a rectangular tube; covering a portion of the outer terminal (40a, 40b) corresponding to a portion of the inner terminal (20a, 20b) to be fastened to the inner conductor (51) on three sides by a covering portion (45), leaving one surface of the rectangular tube open through which the inner terminal is exposed to the outside; characterized by the steps of:

connecting two of said mating connectors (10a, 10b) such that the open surfaces of the outer terminals (40a, 40b) of the connectors face in different directions from each other, preferably in substantially opposite directions.

5. A method according to claim 4, further comprising the step of fastening the outer terminal (40) to the outer conductor (52) of the shielded cable (50) after the inner terminal (20) is connected with the inner conductor (51) in the inner terminal fastening step.

6. A method according to claim 4 or 5, further comprising the following steps:

stripping the sheath (54) to substantially expose the outer conductor (52);
fastening a crimping portion (46) of the outer terminal (40) to both the sheath (54) and the outer conductor (52) being preferably folded back over the sheath (54).

7. A method according to claim 6, wherein in the fastening step crimping pieces (47) of the crimping portion (46) are so crimped as to at least partly wind on or around the outer conductor (52) with the end of a first crimping piece (47) substantially placed (FIG. 2; FIG. 3) on that of a second crimping piece (47).

Patentansprüche

1. Satz von abgeschirmten Verbindern, umfassend erste und zweite abgeschirmte Verbinder (10a, 10b), welche beide mit einem abgeschirmten Kabel (50) verbindbar sind, in welchem ein isolierendes Element (53) zwischen einem inneren und einem äußeren Leiter (51, 52) vorgesehen ist und die äußere Oberfläche durch eine Ummantelung bzw. Abschirmung (54) abgedeckt ist,
wobei beide Verbinder (10a, 10b) umfassen:

einen inneren Anschluß bzw. Kontakt (20a, 20b), welcher mit dem inneren Leiter (51) verbindbar ist,

einen äußeren Anschluß bzw. Kontakt (40a, 40b), welcher adaptiert ist, um wenigstens teilweise den inneren Anschluß (20a, 20b) aufzunehmen, wobei ein dielektrisches Element (30a, 30b) dazwischen vorgesehen ist und mit dem äußeren Leiter (52) verbindbar ist,

wobei der innere Anschluß (20a, 20b) an dem inneren Leiter (51) des abgeschirmten Kabels (50) wenigstens teilweise außerhalb des äußeren Anschlusses (40a, 40b) festlegbar ist,
wobei der äußere Anschluß (40a, 40b) im wesentlichen in Form eines rechtwinkeligen Rohrs ausgebildet ist und einen abdeckenden Abschnitt (45) zum Abdecken eines Abschnitts des inneren Anschlusses (20a, 20b) beinhaltet, welcher an dem inneren Leiter (51) an drei Seiten des rechtwinkeligen Rohrs festzulegen ist, wobei eine Oberfläche des äußeren Anschlusses offen verbleibt, durch welche der innere Anschluß zu der Außenseite freiliegt, und
dadurch gekennzeichnet, daß
der erste und zweite zusammenpassende Verbinder (10a, 10b) derart verbindbar sind, daß die offenen Oberflächen der äußeren Anschlüsse (40a, 40b) davon in unterschiedliche Richtungen voneinander, vorzugsweise im wesentlichen in entgegengesetzten Richtungen, gerichtet sind.

2. Abgeschirmter Verbinder nach Anspruch 1, wobei der äußere Anschluß (40) derart ausgebildet ist, daß er an dem äußeren Leiter (52) des abgeschirmten Kabels (50) festgelegt werden kann, wobei der innere Anschluß (20) mit dem inneren Leiter (51) verbunden ist.

3. Abgeschirmter Verbinder nach einem oder mehreren der vorangehenden Ansprüche, wobei der äußere Leiter (52) wenigstens teilweise über die Ummantelung (54) rückgefaltet ist, wodurch ein gefalteter Abschnitt (55) gebildet ist, und der äußere Anschluß (40) mit einem crimpenden bzw. Crimpabschnitt (46) ausgebildet ist, welcher wenigstens teilweise an dem gefalteten Abschnitt (55) festgelegt werden kann.

4. Verfahren zum Verbinden eines abgeschirmten Verbinders (10a; 10b) mit einem abgeschirmten Kabel (50), in welchem ein isolierendes Element (53) zwischen einem inneren und einem äußeren Leiter (51, 52) vorgesehen wird und die äußere Oberfläche durch eine Ummantelung bzw. Abschirmung (54) abgedeckt wird, umfassend die folgenden Schritte:

Festlegen eines inneren Anschlusses bzw. Kontakts (20a, 20b) des abgeschirmten Verbinders (10a; 10b) an dem inneren Leiter (51) des

abgeschirmten Kabels (50) wenigstens teilweise außerhalb eines äußeren Anschlusses bzw. Kontakts (40a, 40b) des abgeschirmten Verbinders (10a; 10b), und
Aufnehmen des inneren Anschlusses (20a, 20b) wenigstens teilweise in dem äußeren Anschluß (40a, 40b), wobei ein dielektrisches Element dazwischen vorgesehen wird,
Ausbilden des äußeren Anschlusses (40a, 40b) im wesentlichen in die Form eines rechtwinkeligen Rohrs;
Abdecken eines Abschnitts des äußeren Anschlusses (40a, 40b) entsprechend einem Abschnitt des inneren Anschlusses (20a, 20b), welcher an dem inneren Leiter (51) festzulegen ist, an drei Seiten durch einen abdeckenden Abschnitt (45), wobei eine Oberfläche des rechtwinkeligen Rohrs offen verbleibt, durch welche der innere Anschluß zur Außenseite freigelegt wird,

gekennzeichnet durch die Schritte eines:

Verbindens der zwei zusammenpassenden Verbinder (10a, 10b) derart, daß die offenen Oberflächen der äußeren Anschlüsse (40a, 40b) der Verbinder in unterschiedliche Richtungen voneinander, vorzugsweise in im wesentlichen entgegengesetzte Richtungen, gerichtet werden.

5. Verfahren nach Anspruch 4, weiters umfassend den Schritt eines Festlegens des äußeren Anschlusses (40) an dem äußeren Leiter (52) des abgeschirmten Kabels (50), nachdem der innere Anschluß (20) mit dem inneren Leiter (51) in dem Festlegungsschritt des inneren Anschlusses verbunden wird.

6. Verfahren nach Anspruch 4 oder 5, weiters umfassend die folgenden Schritte:

Abstreifen der Ummantelung (54), um im wesentlichen den äußeren Leiter (52) freizulegen;
Festlegen eines crimpanden bzw. Crimpabschnitts (46) des äußeren Anschlusses (40) sowohl an der Ummantelung (54) als auch an dem äußeren Leiter (52), welcher vorzugsweise über die Ummantelung (54) rückgefaltet wird.

7. Verfahren nach Anspruch 6, wobei in dem Festlegungsschritt crimpende Stücke (47) des crimpenden Abschnitts (46) so gecrimpt werden, um sich wenigstens teilweise auf oder um den äußeren Leiter (52) zu wickeln bzw. zu winden, wobei das Ende eines ersten crimpenden Stücks (47) im wesentlichen auf demjenigen eines zweiten crimpenden Stücks (47) angeordnet wird (Fig. 2; Fig. 3).

Revendications

1. Jeu de connecteurs blindés, comprenant un premier et un deuxième connecteurs blindés (10a, 10b) qui peuvent tous deux être connectés à un câble blindé (50) dans lequel un élément isolant (53) est prévu entre des conducteurs intérieur et extérieur (51, 52) et dont la surface extérieure est couverte par une gaine (54), les deux connecteurs (10a, 10b) comprenant :

une borne intérieure (20a, 20b) connectable au conducteur intérieur (51),
une borne extérieure (40a, 40b) qui est prévue pour recevoir au moins en partie la borne intérieure (20a, 20b) avec interposition d'un élément diélectrique (30a, 30b), et qui est connectable au conducteur extérieur (52),

dans lequel la borne intérieure (20a, 20b) peut être fixée au conducteur intérieur (51) du câble blindé (50) au moins en partie à l'extérieur de la borne extérieure (40a, 40b),
la borne extérieure (40a, 40b) étant sensiblement sous la forme d'un tube rectangulaire et incluant une partie de couverture (45) pour couvrir une partie de la borne intérieure (20a, 20b), à fixer au conducteur intérieur (51), sur trois côtés du dit tube rectangulaire de façon à laisser une surface de la borne extérieure ouverte à travers laquelle la borne intérieure est accessible de l'extérieur,
caractérisé en ce que
les dits premier et deuxième connecteurs coopérants (10a, 10b) peuvent être accouplés de sorte que les dites surfaces ouvertes de leurs bornes extérieures (40a, 40b) sont tournées dans des directions mutuellement différentes, de préférence des directions sensiblement opposées.

2. Connecteur blindé selon la revendication 1, dans lequel la borne extérieure (40) est formée de sorte qu'elle peut être fixée au conducteur extérieur (52) du câble blindé (50) alors que la borne intérieure (20) est connectée au conducteur intérieur (51).

3. Connecteur blindé selon une ou plusieurs des revendications précédentes, dans lequel le conducteur extérieur (52) est au moins en partie replié sur la gaine (54) de façon à former une partie rabattue (55), et la borne extérieure (40) comporte une partie de sertissage (46) qui peut être au moins en partie fixée à la partie rabattue (55).

4. Procédé de raccordement d'un connecteur blindé (10a, 10b) à un câble blindé (50) dans lequel un élément isolant (53) est prévu entre des conducteurs intérieur et extérieur (51, 52) et la surface extérieure est couverte par une gaine (54), comprenant les

étapes suivantes :

fixation d'une borne intérieure (20a, 20b) du connecteur blindé (10a, 10b) au conducteur intérieur (51) du câble blindé (50) au moins en partie à l'extérieur d'une borne extérieure (40a, 40b) du connecteur blindé (10a, 10b),
logement de la borne intérieure (20a, 20b) au moins en partie dans la borne extérieure (40a, 40b) avec interposition d'un élément diélectrique, et
formation de la borne extérieure (40a, 40b) sensiblement sous la forme d'un tube rectangulaire,
couverture d'une partie de la borne extérieure (40a, 40b), correspondant à une partie de la borne intérieure (20a, 20b) à fixer au conducteur intérieur (51), sur trois côtés par une partie de couverture (45) de façon à laisser une surface du tube rectangulaire ouverte à travers laquelle la borne intérieure est exposée à l'extérieur,

caractérisé par l'étape de :

accouplement de deux des dits connecteurs coopérants (10a, 10b) de sorte que les surfaces ouvertes des bornes extérieures (40a, 40b) des connecteurs sont tournées dans des directions différentes l'une de l'autre, de préférence dans des directions sensiblement opposées.

5. Procédé selon la revendication 4, comprenant en outre l'étape de fixation de la borne extérieure (40) au conducteur extérieur (52) du câble blindé (50) après connexion de la borne intérieure (20) au conducteur intérieur (51) dans l'étape de fixation de la borne intérieure.

6. Procédé selon la revendication 4 ou 5, comprenant en outre les etapes suivantes :

enlèvement de la gaine (54) de manière à découvrir substantiellement le conducteur extérieur (52), et
fixation d'une partie de sertissage (46) de la borne extérieure (40) à la fois à la gaine (54) et au conducteur extérieur (52) qui est de préférence rabattu sur la gaine (54).

7. Procédé selon la revendication 6, dans lequel, dans l'étape de fixation, des éléments de sertissage (47) de la partie de sertissage (46) sont sertis de façon à s'enrouler au moins en partie sur ou autour du conducteur extérieur (52), l'extrémité d'un premier élément de sertissage (47) étant sensiblement placée (figure 2 ; figure 3) sur celle d'un deuxième élément de sertissage (47).

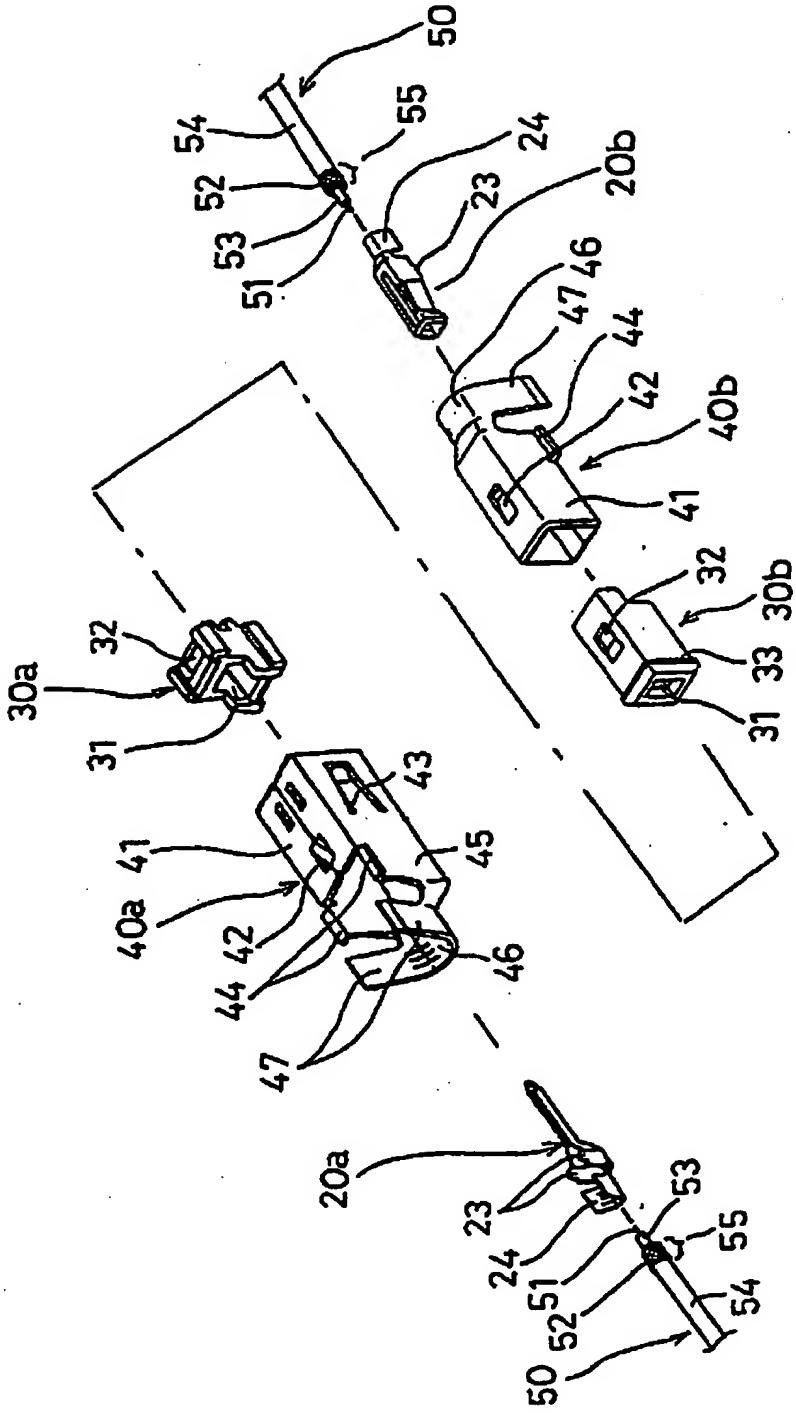
50
54
55
24
52
23
20b
53
51
46
47
44
42
40b
41
32
30b
33
31
30a
32
31
43
41
45
40a
42
46
44
47
20a
23
53
24
55
51
54
52
50

FIG. 1

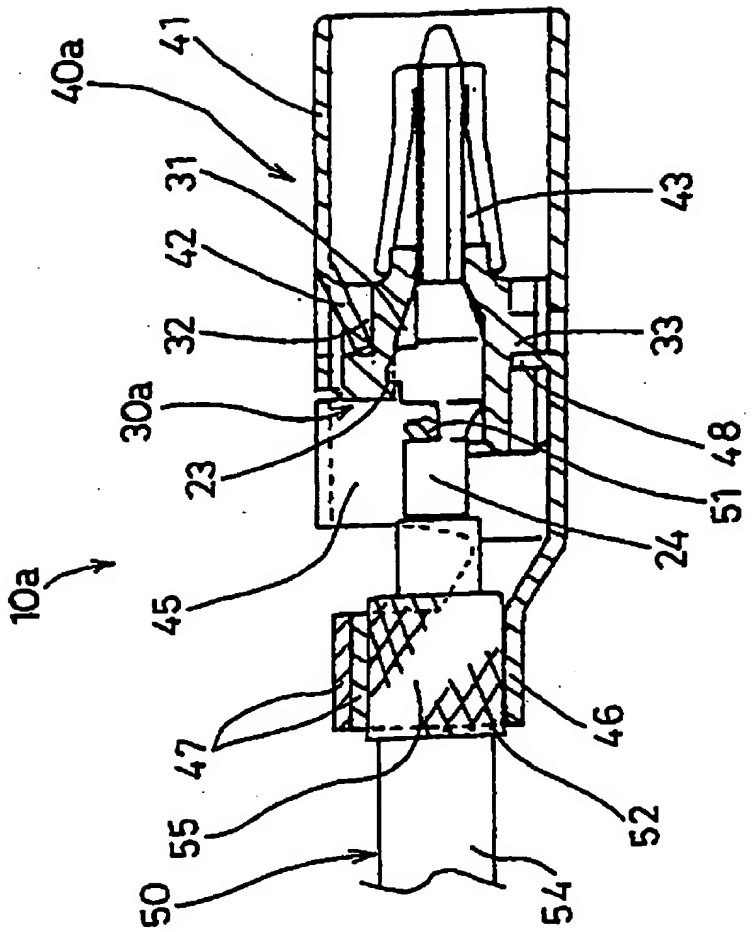

FIG. 2

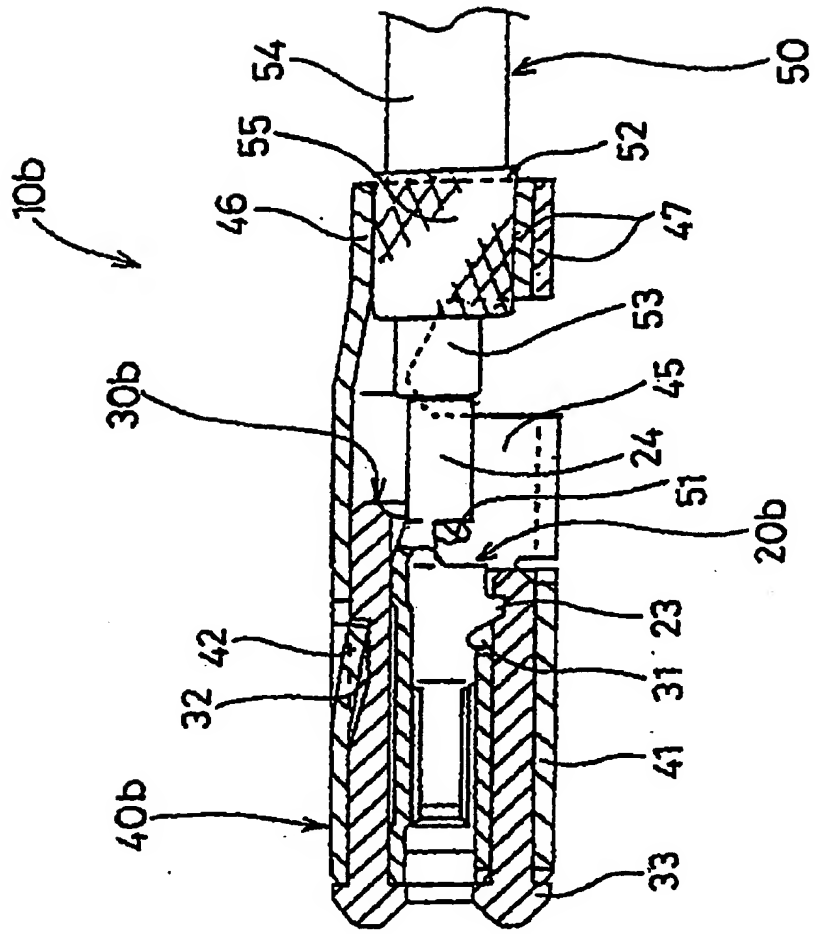

FIG. 3

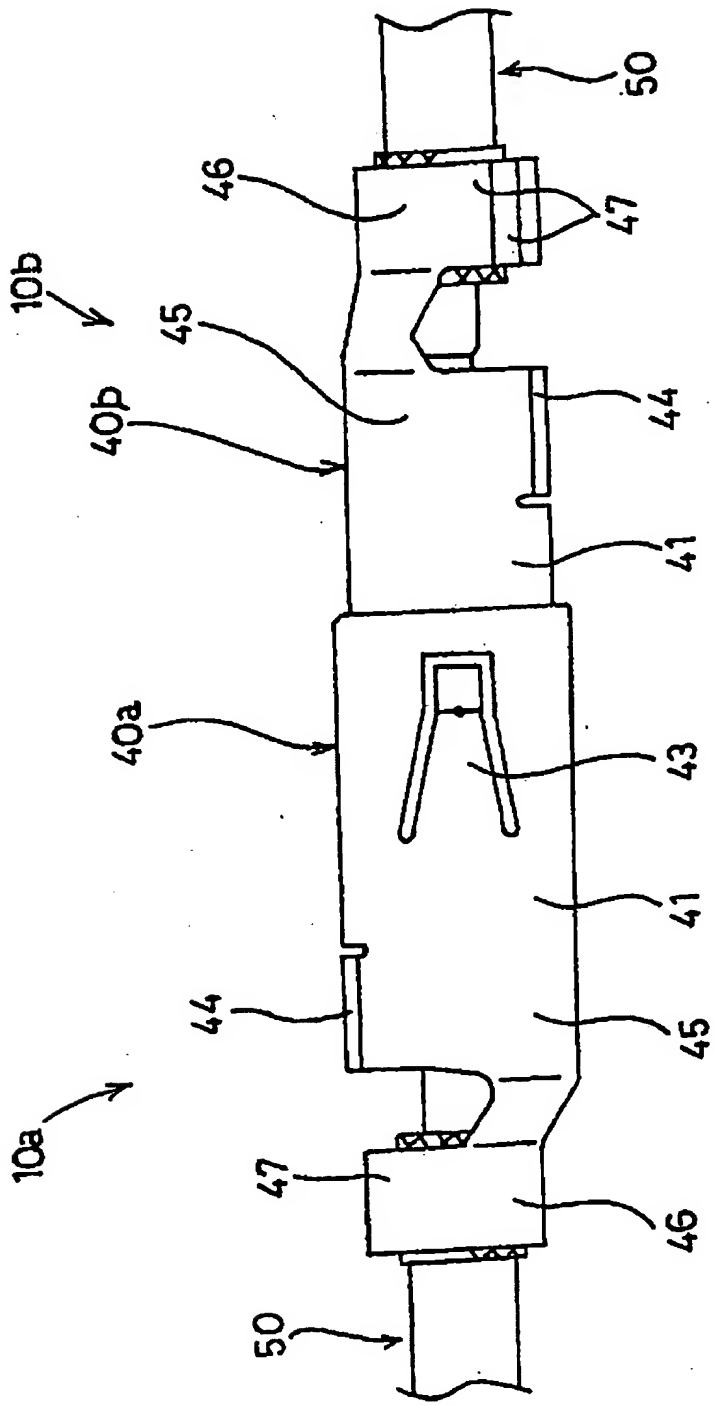

FIG. 4

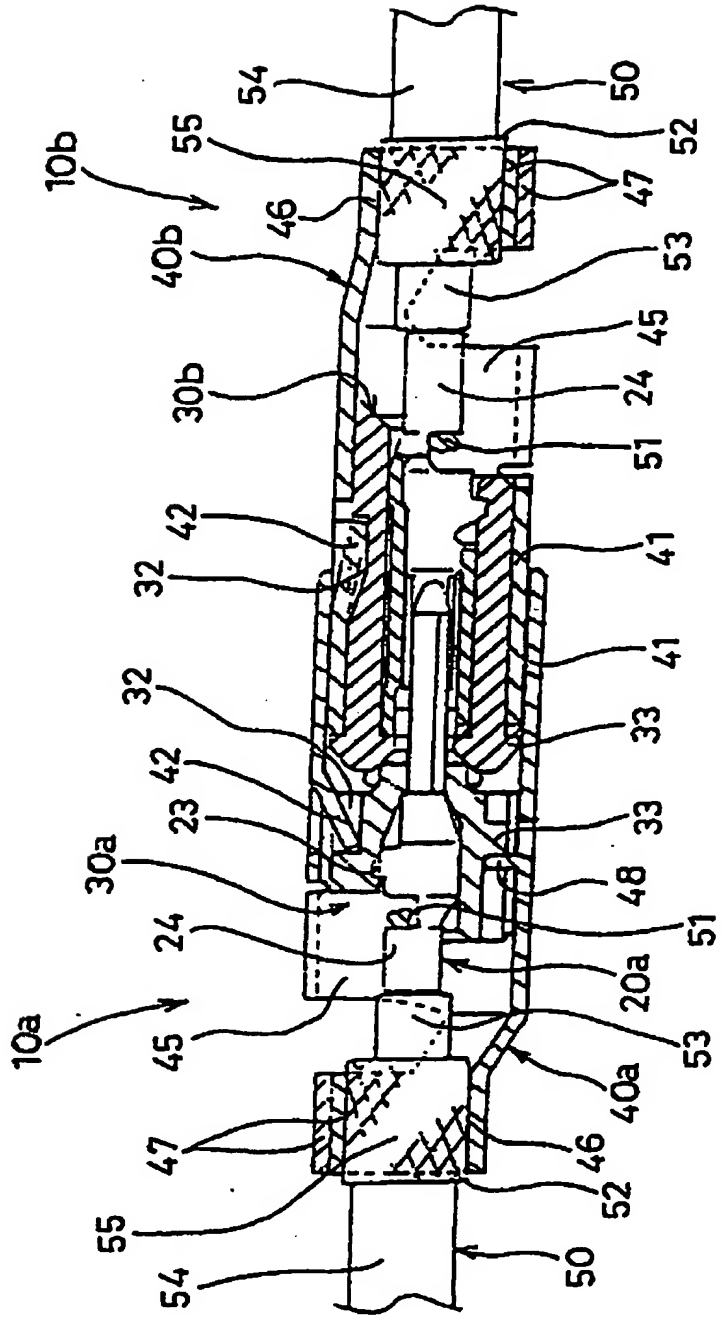
54
50
55
52
10b
47
46
40b
53
45
30b
24
51
42
41
32
41
32
33
42
23
33
30a
48
24
51
20a
10a
45
53
40a
47
46
55
52
54
50

FIG. 5

FIG. 6
PRIOR ART

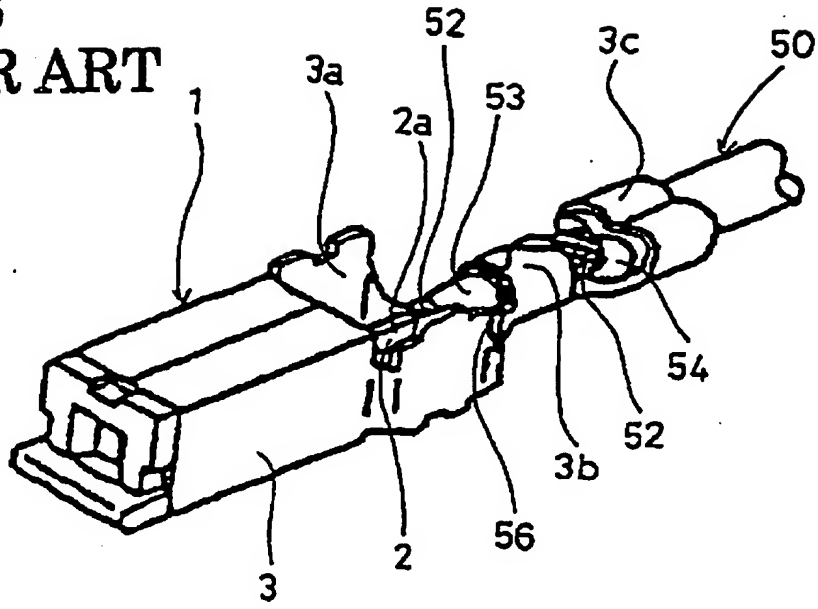

FIG. 7
PRIOR ART

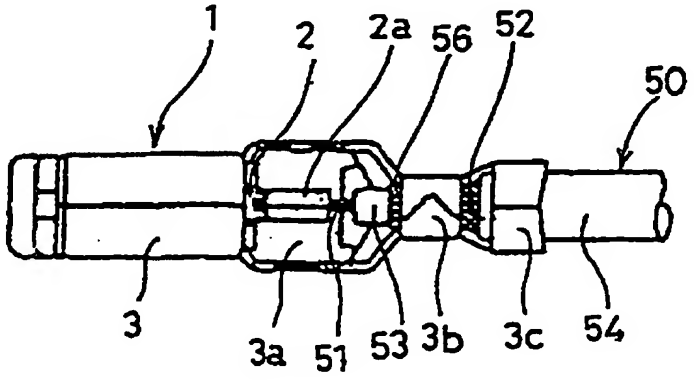

FIG. 8
PRIOR ART